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# AP1000

# Digital Instrumentation and Control

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# AP1000 Design Certification Finality

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- Functional Design
- Applicable codes and standards
- Basic architecture
- Diversity/Defense-in-Depth
- Minimum Inventory
- Diverse Actuation Functions
- Design Acceptance Criteria



# AP1000 I&C Design and Licensing Efforts

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- Plant Simplicity Drives I&C Safety System Simplicity
  - One-time component actuation
- Common Q Platform
- “Simple” digital I&C implementation
- Technical Reports
- Existing requirements and Guidance remain applicable

# Fundamentals the Same as Operating Plants

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- Functional Basis – Simplistic and Transparent
- Architecture Basis
  - Divisional Independence
  - Safety/Non-Safety Separation
  - Isolation
- Communications and Architecture driven from operating plant design and experience
- Analog to Digital Implementation does not impact Fundamental Philosophy

# AP1000 I&C Evolutions

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- Diverse Actuation Functions
  - Functionality resolved in Design Certification
  - Separate sensors/actuators from those used by the Safety System
  - New Plant (clean sheet) flexibilities
- Priority for safety system actuation
- Cyber Security Issues
  - AP1000 Technical Report
  - Consistent with NEI-04-04

# AP1000 Licensing Efforts

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- Design Certification resolved many I&C issues for the AP1000 Design
- Technical Reports/DCCD Revision 16 to resolve I&C DAC
- NRC interactions to establish sufficient information for reasonable assurance
- Simplistic digital I&C application results in acceptable use of existing regulatory requirements and guidance

# AP1000 Licensing Efforts

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- Development of Cyber Security Plan
  - TR is developed and submitted
  - Continued work with Industry and Staff to resolve the issues/concerns
  - Consistent with NEI-04-04
- Westinghouse-proposed schedule for resolution by Spring 2008

# Conclusions/Comments

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- Design Certification resolved many I&C issues for AP1000
- Existing NRC regulatory requirements and guidance sufficient to evaluate AP1000 I&C safety system
- Licensing basis for I&C in the design certification rule
- Propose to resolve I&C DAC in DCD amendment currently under NRC staff review
- Result in elimination of the DAC from the AP1000 Design Certification Rule upon successful NRC reasonable assurance conclusion
- Operating plant upgrade issues different